

Workgroup Activities – Third Quarter 2012

A. Contaminant Fate Workgroup

Purpose of Workgroup

The purpose of the workgroup is to evaluate the fate of contaminants in the Bay, to understand the contribution of Bay margins to the overall health of the Bay, and to assess the potential impacts of Bay management actions on Bay recovery.

Meetings:

The Contaminant Fate Workgroup (CFWG) will meet in the fall to review tactical plans developed in coordination with the nutrient monitoring and modeling efforts and to further refine modeling work for 2013.

Milestones:

- Completion of the Bioaccumulation Conceptual Model. The document has been posted to the website (<http://www.sfei.org/sites/default/files/BCM%20Final%2008-03-2012.pdf>). The report summarizes key datasets and current knowledge of bioaccumulation in the Bay, and identifies priorities for future monitoring and modeling to support management of bioaccumulative pollutants.
- Completion of the Margins Conceptual Model. The document can be found at the following link: (<http://www.sfei.org/documents/margins-conceptual-model>). The margins of the Bay are teeming with important activities: industrial activities such as airports, refineries, ports, and landfills as well as biological activities such as wetlands, bird rookeries, and seal haul-out sites. It represents a complex environment where the watersheds meet the Bay. This report identifies key processes – physical, chemical and biological – and explores modeling efforts that can be used to help us better understand this complex environment.

Activities for the Third Quarter of 2012:

- Development of tactical plan. Drs. Jones, Yee, Senn, and Davis discussed an outline of a plan with a smaller group of RMP stakeholders and Water Board staff on May 1st and June 4th. There was support for integrating the modeling efforts as much as possible, but some differences in the spatial and temporal scales of interest and timelines for products needed for various management questions. Partnering efforts with other agencies already modeling in the Bay will be explored and developed.
- A joint meeting of the full CFWG and its nutrient analog will occur in the fall to review the draft modeling workplan/ tactical plan. This would be open to a broader group.

For more information, see previous CFWG minutes and agendas at our website <http://www.sfei.org/rmp/cfwg> or contact the CFWG leader, Don Yee, at don@sfei.org.

B. Sources Pathways and Loading Workgroup (SPLWG)

Purpose of Workgroup

The purpose of the workgroup is to monitor storm water, small tributaries, and delta outflow to understand contaminant loads to the Bay, to identify high priority tributaries for management actions, to evaluate how loads are changing over time, and to assess possible options for improving water quality.

Meetings:

The SPLWG will meet on October 24th, 2012. The Small Tributary Strategy Loading team meets almost monthly to assure that RMP activities are coordinated with the Municipal Regional Permit requirements, Regional Board staff and BASMAA staff.

Milestones:

- Completion of Zone 4 Line A report that summarizes four years of data (http://www.sfei.org/sites/default/files/Z4LA_Final_2012May15.pdf). This study of a small urbanized watershed had several important findings including: 1) some contaminant loads were on par with what has been observed in larger less developed watersheds; 2) small highly urbanized watersheds can be hard to characterize due to the rapid and variable mobilization of contaminants; and 3) dry weather flows tend to have lower percentage of the load as compared to wet weather loads.
- Completed Guadalupe HSPF technical report (http://www.sfei.org/sites/default/files/Guad_HSPF_Model_forSPLRev_17Feb2012.pdf)) The Hydrologic Simulation Program-FORTRAN (HSPF) was used to estimate sediment, mercury and PCBs loads moving through this mixed land use watershed as a tool for improved management. Model parameters for hydrology were widely available and were successfully calibrated to observed data at two tributary sites and validated at a downstream mainstem site. HSPF-specific parameters were developed for mercury and PCBs since they do not currently exist in the published literature. Current data limitations hindered the calibration of the sediment and water quality model.
- Completion of the Update of Regional Storm Water Spreadsheet Model (Year II). A GIS-based rainfall-runoff regional watershed spreadsheet model is under development to help assess which Bay tributaries contribute most to Bay impairment from contaminants, what the annual loads and concentrations for the tributaries are, what the long term loading trends are, and what sort of impact potential management actions might have. The second year of model development focused on refining the underlying hydrological model by adding calibration watersheds, removing incongruent data, and refining land-use categories.
- Completion of the Regional Storm Water Spreadsheet Model and EMC literature review (Year 1). The first year focused on developing the hydrological and sediment transport models, which will be refined and extended to pollutants in subsequent years.

Activities for the Third Quarter of 2012:

- RMP staff are gearing up for the wet weather sampling at six sites: North Richmond (new this year to RMP), Pulgas pump station (new this year), San Leandro east,

Sunnyvale, Lower Marsh, and Guadalupe. The sites that will be covered by the RMP are North Richmond and Sunnyvale.

- Wet weather sampling activities for 2012.
 - a. Guadalupe watershed (Completed 3 storms)
 - b. Sunnyvale watershed (Completed 2 storms)
 - c. San Leandro watershed (Completed year 1 monitoring)
 - d. The STLS team decided to demobilize POC stations which concludes WY2012 POC monitoring. Remaining funding for these sites will be held for use in WY 2013.
- Writing summary report of 16 watersheds (reconnaissance work).
- The STLS team met at the end of June to discuss lessons learned from the 1st year of POC monitoring.

The next SPLWG meeting will be held on October 24th, 2012. For more information, see previous SPLWG minutes and agenda at our website <http://www.sfei.org/rmp/splwg> or contact the SPLWG lead, Lester McKee, at Lester@sfei.org.

C. Exposure and Effects (EE) Workgroup-

Purpose of Workgroup

The Exposure and Effect workgroup seeks to answer the following questions: Are pollutants individually or in combination having adverse impacts on Bay biota?; Are there spatial and temporal trends?; Which pollutants are responsible for the impacts?; Are there cost-effective tools that can be used to easily monitor these impacts?; and What are the appropriate guidelines?

Meetings:

- The workgroup met with the Emerging Contaminants workgroup to discuss bioanalytical tools and EEWG projects for 2013. The workgroup reviewed the progress on the copper and olfactory nerve project and the PAH and juvenile flatfish. Preliminary copper experiments suggest that there is relatively little toxicity to the olfactory nerve at levels that are observed in the estuary. Confirmation studies will be conducted Summer/Fall 2012. Similarly relatively few adverse outcomes were observed for juvenile flatfish at levels observed in the estuary; however, histology work remains to be completed.

Milestones:

- Completion of the draft report on effects of PAH on juvenile flatfish. A draft report was made available at the meeting; however, additional work needs to be incorporated into the report including histology.

Activities for the Third Quarter of 2012:

- Completion of the EEPS Summary document.
- Planning for the Mesohaline Index Development for 2012 and the Causes of Moderate Toxicity workshop at the fall National SETAC meeting.

The next workgroup meeting will be held in Spring 2013. For more information, see previous EEWG minutes and agenda at our website <http://www.sfei.org/rmp/eewg> or contact the EEWG lead, Meg Sedlak, at meg@sfei.org.

D. Emerging Contaminants Workgroup

Purpose of Workgroup

The purpose of the emerging contaminant workgroup is to identify contaminants of emerging concern (CECs) that have the potential to adversely impact beneficial uses of the Bay.

Meetings:

The ECWG met on May 16th to discuss the recently completed synthesis document, a strategy for prioritizing chemicals of emerging concern in the RMP, siloxanes, and an update on the non-targeted screening of Bay Wildlife. The bioanalytical tools proposal for 2013 was discussed and will be brought forward with some caveats. Other proposals for 2013 include an update on PBDEs, a review of current use pesticides and a method for updating the CEC strategy.

Milestones:

- Preparation of an Emerging Contaminants Synthesis report.
- Submitted article on alternative flame retardants in San Francisco Bay (accepted). (<http://www.sfei.org/documents/alternative-flame-retardants-sfbay-sediments-and-wildlife>)
- Submitted draft report/manuscript on alkylphenols and PPCPs in San Francisco Bay (accepted).
- Completion of a draft PFC sources paper (sent to ECWG for comment).

Activities for the Third Quarter of 2012:

- Development of an Emerging Contaminants Strategy.
- Two manuscripts summarizing the National Mussel Watch sampling in California for chemicals of emerging concern. One paper will focus on personal care products, alkylphenols, current use pesticides and nanomaterials. The second paper will focus on flame retardants and perfluorinated compounds. This work is being conducted by SCCWRP.
- Continuation of NIST broadscan work. Samples of harbor seals and mussels have been sent to NIST for method development and analysis.

Next ECWG meeting will be held Spring 2013.

For more information, see previous EC workgroup minutes and agenda at our website <http://www.sfei.org/rmp/ecwg> or contact the ECWG lead, Meg Sedlak meg@sfei.org.

E. Nutrients

Purpose of Workgroup

The purpose of this workgroup is to evaluate nutrients, methods for monitoring nutrients/ indicators, and scenarios that may result in adverse impacts to the Bay.

Meetings

The Nutrient Stakeholder Advisory Group Technical Subcommittee (SAG-TC) met on June 22nd, 2011, and provided detailed feedback on a funding proposal to the RMP for 2013, and on draft of the nutrient strategy for the Bay.

Milestones

- A draft version of the nutrient strategy was presented to the SAG on June 22nd 2012. A revised draft strategy will be developed by September that addresses the feedback, with a final strategy distributed in December that is intended to be a living document that will be updated on an as needed basis. [This effort is funded by BACWA through a Region 2-BACWA agreement]
- The approach for developing the nutrient conceptual model was developed in February-April, through literature review and meetings with regional scientists and stakeholders. A draft of the nutrient conceptual model will be completed in September 2012.
- A nutrient conceptual model technical team meeting was held on May 7-8. Technical team members include Jim Cloern (USGS), Lisa Lucas (USGS), Anke Mueller-Solger (IEP), Raphael Kudela (UCSC), Mark Stacey (UC-Berkeley), Mike Connor (EBDA), Tim Hollibaugh (U-Georgia), Dick Dugdale (SFSU-RTC), Wim Kimmerer (SFSU-RTC), Martha Sutula (SCCWRP), and David Senn (SFEI). Accomplishments of the meeting include:
 - agreeing on a structure for the conceptual models (organized largely around measureable indicators and drivers: phytoplankton biomass, dissolved oxygen, nitrogen cycling, phytoplankton community composition, algal biotoxins, and hydrodynamics)
 - developing draft conceptual models for phytoplankton biomass, nitrogen cycling, and phytoplankton community composition
 - discussion of problem statement: what would a problem look like in SF Bay if one were to occur?
 - identification of major data gaps or uncertaintiesSince that meeting, work has continued on developing a detailed outline of the conceptual model report and on drafting several key sections. The next conceptual model technical team meeting will be held on September 14th 2012 to discuss draft conceptual models and next steps.
- Initial work on the RMP-funded nutrient load project commenced in the second quarter. Loads from POTWs to individual Bay segments were computed based treatment types and design flows, and, where data was available, actual flows and effluent composition were used. First estimates of loads from the Delta were made for the period of 1975-present, calculated on a monthly basis. [A portion of this effort was funded by BACWA through a Region 2-BACWA agreement, with the remainder funded by RMP]

- Field work for nutrient stormwater measurements was carried out in January-April 2012. Final nutrient data arrived at SFEI in late May, and the RMP data management group completed QA/QC on June 12. Analysis of data, data interpretation, and preparation of a technical has been delayed due to on-going discussion with BASMAA about data useage.
- A website for the nutrient strategy was created, with information on nutrient strategy partners, projects, documents and upcoming events, as well as links to useful science and management pages and partners. (<http://bayareanutrients.aquaticscience.org/>) [This effort is funded by BACWA through a Region 2-BACWA agreement]
- A draft of the Suisun Synthesis report is underway and will be completed in September 2012. It includes chapters on phytoplankton nutrient uptake, primary production, zooplankton ecology in and a synthesis of existing water quality data in Suisun Bay. [This effort is funded by BACWA through a Region 2-BACWA agreement]

Activities for the Third Quarter of 2012:

- A subset of the conceptual model technical team (augmented by specialists in nitrogen cycling) will reconvene on September 14. Draft chapters of the conceptual model report are under development and that effort will continue through October/November. An update will be distributed to stakeholders at the end of September (including a detailed outline).
- Work will continue on the nutrient loading study in Summer 2012. Key goals include refining POTW loads to individual Bay segments based on actual historic data (2004-2011) that may become available through a request from the Regional Board, and through individual requests by SFEI staff to POTW managers. Nutrient data from past stormwater studies data collected in the region will be used, along with a “spreadsheet” hydrological model, to calculate approximate seasonal or monthly loads from stormwater to individual Bay compartments. Effort will also be directed toward improving the estimates of seasonally- and temporally-varying loads from the Delta to Suisun Bay.

For more information, please contact David Senn at davids@sfei.org.

F. Dioxin

The dioxin strategy team met on October 26th, 2011 to review the sediment, water, and biota samples that have been collected to date. The water samples were dominated by the octa and the hepta congeners. Sediment samples were collected in both wet and dry seasons and no significant differences were noted; similarly, concentrations remain the same as those observed in 2000. Spatial patterns suggest broad regional trends. Again sediments are dominated by octa and hepta congeners. In the sediment cores, there appears to be a peak after WWII followed by a decline. Dioxin concentrations in shiner surfperch and white croaker continue to exceed the RWQCB guidelines. It was proposed that upon completion of the dioxin studies, it would be appropriate to conduct a dioxin synthesis (2014). Some members thought mass balance and food web model products should be folded into the synthesis rather than as separate reports.

Activities for the Third Quarter of 2012:

- Develop a scope of work for dioxin analysis of cores based on strategy team recommendation.

For more information, please contact Don Yee at don@sfei.org.

G. Status and Trends Sport Fish

Purpose of Workgroup

The purpose of the workgroup is to design RMP studies relating to sport fish contamination.

Meetings

The workgroup met on July 10th for a general update and to hold initial discussions of information gaps that could be addressed in the next round of sampling. RMP sport fish monitoring has been switched from a three-year cycle to a five-year cycle to maximize cost-effectiveness and to coordinate with state-wide monitoring efforts. The next round of sampling will occur in 2014.

Milestones

The report on the 2009 SWAMP/RMP sport fish monitoring report has been released and is available on our website at <http://www.sfei.org/contaminants-fish-california-coast>. The report on the full two-year statewide coast survey, which provides valuable context for interpreting contaminants in Bay sport fish, was released in May 2012: <http://www.sfei.org/node/4075>

For more information, please contact Jennifer Hunt at jhunt@sfei.org.

H. Items of Interest

There are a number of interesting activities that are not RMP-related but nonetheless of interest to the RMP community.

Delta RMP

The Delta RMP has organized a Steering Committee consisting of POTWs, stormwater programs, agricultural water quality coalitions, the Interagency Ecological Program (IEP), the State and Federal Water Contracting Agencies (SFWCA), the Central Valley Regional Water Board, and the U.S. Environmental Protection Agency (USEPA). An initial meeting of the Steering Committee is planned for late September. The Steering Committee will be deciding on a lead entity for the long-term implementation. A meeting summary and background materials are available at the Central Valley Regional Water Board's Delta RMP.

http://www.waterboards.ca.gov/centralvalley/water_issues/delta_water_quality/comprehensive_monitoring_program/index.shtml.

Pulse of the Delta 2012: Linking Science & Management Through Regional Monitoring

The Pulse of the Delta 2012 is on its way to the printer, with an expected release date in the second half of September. This second edition includes a key note article on the benefits of regional monitoring and management updates on the Delta RMP, U.S. EPA's Bay-Delta

Action Plan, and Nutrient Numeric Endpoints for the estuary. This year's feature articles shine a spotlight on new research that may help wetland managers in the Delta reduce the methylmercury problem and showcase the history and future of the IEP in the context of the historic and future ecosystem. And new this year is a status and trends section that highlights the latest monitoring results and tracks lead indicators for water quality and ecosystem health in the Delta. For more information, contact Thomas Jabusch (thomas@aquaticsciencecenter.org, 510-746-7340)

SWAMP Bioaccumulation

Jay Davis is assisting monitoring biota at the State level. Current activities include preparing a report on contaminants in fish in California rivers and streams (due May 2013), a study of mercury effects on wildlife in California lakes (sampling summer 2012), a workshop on biotoxin monitoring this fall, a forthcoming report documenting long-term trends in bioaccumulation in mussels, and development of a statewide strategy for bioaccumulation monitoring, assessment, and communication.

California Monitoring Council

The California Water Quality Monitoring Council invited a sizeable contingent from SFEI-ASC to provide updates on mapping and data management needs, as well as regional monitoring efforts in central and northern California. The Council operates under a Memorandum of Understanding between CalEPA and the Natural Resources Agency and is charged with developing specific recommendations to improve the coordination and cost-effectiveness of water quality and ecosystem monitoring and assessment, enhance the integration of monitoring data across departments and agencies, and increase public accessibility to monitoring data and assessment information. While the Monitoring Council may recommend new monitoring or management initiatives, it will build on existing efforts to the greatest extent possible.

Meg Sedlak presented to the Monitoring Council an overview of the origins of the San Francisco Bay Regional Monitoring Program, why it has been successful, how it has developed tools that have benefited coordination efforts in other regions, how data are being managed and made available, and what its measures of success are. It was notable that the RMP was a model program emulated by many other regional monitoring programs.

The Council gave the Bioaccumulation Oversight Group (chaired by Jay Davis) the charge to develop a strategy for statewide monitoring of contaminants of emerging concern (CECs) in mussels and other biota.

Oakland Museum – Bay Exhibit “Above and Below”

SFEI Historical Ecology and RMP staff led by Robin Grossinger and Ruth Askevold are working with the Oakland Museum to develop a Bay Exhibit celebrating the opening of the Bay Bridge and the complex ecosystem of the Bay. The exhibit will open in the Fall of 2013.